MOISTURIZING HAIRDRESSING APPARATUS

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a moisturizing hairdressing apparatus for supplying steam or the like to one's hair, to be used in a beauty salon, a barbershop, etc.

2. Description of the Related Art

A conventional apparatus for supplying steam to one's hair for use in a beauty salon, a barbershop, etc., is found, for example, in Patent Literature 1 cited below, which discloses a hair moisturizing apparatus.

The hair moisturizing apparatus disclosed therein is configured to generate steam in a steam generating pot, such that the steam that has been generated is supplied through a steam conducting tube and a stretchable bellows hose into a cap put on one's head so as to cover his/her hair. Droplets that have emerged through dew condensation in the cap are discharged to a drain tank through an opening provided at a bottom portion of a U-shaped curvature formed halfway through the steam conducting tube.

Japanese Unexamined Patent Publication No. Hei-10-323213 teaches one known configuration. However, according to such

a configuration of the apparatus, droplets of a high temperature may attach to the hair in a case where the steam contains droplets. Also, it takes a long period of time to provide sufficient moisture over the entire head of hair because the steam that has been generated is utilized as it is with its spontaneous pressure. Furthermore, since the entire head is covered with a cap it is impossible to moisturize only a part of the head of hair when necessary, nor to simultaneously perform another job such as brushing the hair.

Accordingly, a hairdressing apparatus that permits preventing droplets from contacting one's hair, and that enables appropriate moisturization of a desired portion of one's hair, has been required.

SUMMARY OF THE INVENTION

The present invention relates to a moisturizing hairdressing apparatus including an main unit, a handpiece, an injection chamber, and an injecting tube. The main unit generats steam to moisturize one's hair. The handpiece is movably attached to said main unit. The injection chamber is accommodated in said handpiece and receives the steam supplied through a pipe connected to the bottom part thereof from the main-unit. The injecting tube which receives the steam through

an inlet provided at one end thereof and which injects the steam to one's hair through a nozzle provided at the other end thereof. In this apparatus, an outlet of said pipe is positioned between the nozzle and the inlet opposite to said nozzle of said injecting tube.

According to such a moisturizing hairdressing apparatus, steam is injected to one's hair from the opening of the pipe and through the injecting tube, during which the steam is not rectilinearly guided from the pipe into the injecting tube, but changes a flowing direction and is guided into the injecting tube after flowing along a longitudinal direction of the injecting tube. In a case where the steam contains droplets, the droplets can be added to the injecting tube or a wall face of the injection chamber in a form of concentrated dew, because of such change in flowing direction.

In the present invention, it is preferable that the injection chamber is provided with a slanted face located from its front face on which the nozzle of the injecting tube is disposed toward its bottom face connected to the pipe.

As a result of such a configuration, even when droplets are produced because of dew concentration the droplets promptly return toward the main unit along the slanted face. Consequently, the droplets are not blown toward one's hair

although the handpiece is inclined.

According to the present invention, since the steam supplied through the pipe inside the handpiece is injected toward one's hair through the injecting tube only after changing a flowing direction, droplets are not blown to his/her hair. Also, since an operator can adjust an injecting position holding the handpiece 4 in hand, it is possible to sufficiently moisturize a desired portion of one's hair.

BRIEF DESCRIPTION OF THE DRAWING

Fig. 1 is a block diagram showing a configuration of a moisturizing hairdressing apparatus according to an embodiment of the present invention; and

Fig. 2 is a cross-sectional view showing a handpiece.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the accompanying drawings, an embodiment of the present invention will be described in details.

As outlined in Fig. 1, a moisturizing hairdressing apparatus 1 according to this embodiment is provided with a main unit 2 for generating steam and a handpiece 4 connected to the main unit 2 through a supply hose 3 for injecting steam or negative ions into one's hair.

The main unit 2 is provided with a steam pot 11 for generating steam, a purified water tank 12 from which purified water is supplied to the steam pot 11, a control unit 13 for controlling supply of the purified water or steam generation, and an operating unit, a power source, a drain cock for discharging water, etc., which are omitted from the drawing.

The steam pot 11 has a capacity sufficient to temporarily store a predetermined amount of purified water, and is provided with a heater 14 therein for heating the purified water. Also, the steam pot 11 is provided with a level sensor 15 for detecting a water level of the purified water. The purified water heated up by the heater 14 converts to steam, and the steam is guided to the supply hose 3 via an opening 11a located at an upper face of the steam pot 11 and a conducting tube 16a.

The purified water tank 12 is detachably installed at an upper portion of the main unit 2, for storing the purified water to be supplied to the steam pot 11. The conducting tube 16b connecting the purified water tank 12 and the steam pot 11 is provided with a valve 18, so that the control unit 13 controls the valve 18 for adjusting a supply amount or a supply timing of the purified water from the purified water tank 12 to the steam pot 11. Here, the supply amount or supply timing of the purified water is to be determined by the control unit

13 once the level sensor 15 has detected that the water level in the steam pot 11 has fallen below a predetermined value.

An operating unit omitted from the drawing is provided on an upper face of the main unit 2 for operation of a main power switch of the moisturizing hairdressing apparatus 1 or start of steam supply, etc.

The supply hose 3 is comprised of a bendable flexible tube, and an end portion 3a thereof is attached to the main unit 2 via an attachment 17. The other end portion 3b is connected to the handpiece 4 for injecting steam into one's hair. The attachment 17 is rotatably supported by the main unit 2, so that an entirety of the supply hose 3 can be rotated with respect to the main unit 2. Also, the handpiece 4 is attached to the supply hose such that the handpiece 4 can rotate around a longitudinal axis of the supply hose 3. Because of the supply hose 3 being bendable and rotatably attached to the main unit 2, and the handpiece 4 being rotatably attached to the supply hose 3, it is quite easy for an operator to move the handpiece 4 to a desired position for injecting steam. Further, it is preferable to provide a stopper on the main unit 2 for restricting a rotating angle of the attachment 17, in order to prevent a portion of the supply hose 3 close to the attachment 17 from being oriented downward to form a U-shape

or the like when the supply hose 3 is rotated together with the attachment 17.

The handpiece 4 is provided with a hand grip 21 to be held by an operator, and a lower end portion of the hand grip 21 is connected to the supply hose 3. The hand grip 21 is provided with a trigger switch 22 for locally controlling injection of steam or negative ions. Further, a portion of the handpiece 4 extending from an upper end portion of the hand grip 21 is formed in a protruding shape, thus comprising a projecting section 23 containing therein a steam nozzle, etc.

As shown in the cross-sectional drawing of Fig. 2, the hand grip 21 internally contains a pipe 31 for conducting the steam supplied through the supply hose 3 to an injecting unit 42, and is provided with the trigger switch 22 and an associated circuit 32, and also a negative ion generating unit 33 for generating a high voltage to inject negative ions, respectively disposed at remaining positions inside the hand grip 21.

The projecting section 23 has a larger space than the pipe 31 because of its protruding shape. Inside the projecting section 23, a negative ion injecting unit 34 for injecting negative ions and an injecting unit 35 for injecting steam are adjacently disposed in a vertical direction. The negative ion injecting unit 34 and the steam injecting unit 35 are oriented

so that a longitudinal side thereof becomes substantially parallel to a protruding direction (the arrow A in Fig. 3) of the projecting section 23, so that negative ions and steam are respectively injected through a nozzle cap 36 attached to a front end portion 23a of the projecting section 23. Also, an LED 37 for showing that negative ions and/or steam are being injected, and a press-button type selecting switch 38 for performing continuous injection of negative ions and/or steam are provided at a rear face 23b of the projecting section 23. The selecting switch 38 serves to select either on or off of the contact upon being pressed by an operator, and to maintain the selected state until a subsequent pressing. Meanwhile, the trigger switch 22 keeps the power on while the lever is being held by a finger or the like, but turns off the power once the finger is removed.

The steam injecting unit 35 is comprised of an injection chamber 41, which is a container having a predetermined capacity, and an injecting tube 42 including an injecting nozzle 42a through which steam is to be injected.

The injection chamber 41 has a greater cross-sectional area in a direction perpendicular to a longitudinal direction of the pipe 31 than that of the pipe 31, and is provided with a slanted face 45 located between its front face 43 on the side

of the front end portion 23a of the projecting section 23 and its downwardly located bottom face 44 on the side of the pipe 31, so as to reduce a longitudinal cross-sectional area of the injection chamber 41 (in a direction parallel to the arrow A). This slanted face 45 serves to facilitate droplets to return to the main unit 2 through the pipe 31, when steam is concentrated into droplets inside the injection chamber 41. Also, another slanted face 47 is provided between a rear face 46 opposite to the front face 43 and the bottom face 44, so as to reduce the longitudinal cross-sectional area of the injection chamber 41.

The injecting tube 42 is comprised of a cylindrical pipe for urging the steam supplied to the injection chamber 41 to be injected outward, and is inserted into the injection chamber 41 through the front face 43. An opening provided at an end portion of the injecting tube 42 is exposed from the front face 43 to comprise the nozzle 42a. On the other hand, an opening 42b provided at the other end portion of the injecting tube 42 is located closer to the rear face 46 of the injection chamber 41 than a longitudinal extension B (shown by dot-dashed line in Fig.3)of the pipe 31 extrapolated from the opening 31a. In other words, the injecting tube 42 is disposed such that the steam supplied through the pipe 31 cannot directly flow in.

In a case where the steam supplied through the pipe 31 contains droplets, the steam is guided into the opening 42b after changing its flowing direction from a direction along an extension B of the pipe 31 to a longitudinal direction of the injecting tube 42. At this stage, since droplets cannot change their moving direction so easily as the steam can, the droplets hit an outer surface of the injecting tube 42, etc., to be concentrated into dew. Accordingly, since droplets cannot intrude into the injecting tube 42, the droplets cannot be directly blown into one's hair. Meanwhile, the droplets hit an outer surface of the injecting tube 42 or an inner wall of the injection chamber 41 and flow down to the bottom face 44, wherein they return toward the main unit 2 through the pipe 31.

Now, according to Fig. 1 and Fig. 2, operation of the moisturizing hairdressing apparatus comprised as above will be described hereunder.

First, an appropriate amount of fresh purified water is deposited in the purified water tank 12 and the steam pot 11 respectively, and the power is turned on at the main unit 2. An operator takes up the handpiece 4 and selects steam generation at the operating unit of the main unit 2. This causes the operating unit to output a selection signal for notifying of

the selection of steam to the control unit 13, so that according to a controlling action of the control unit 13 the heater 14 in the steam pot 11 is activated, to heat up the purified water.

Following the above, the operator directs the nozzle cap 36 (i.e. the nozzle 42a) of the handpiece 4 toward a subject's hair, and pulls the trigger switch 22. This turns on the contact of the trigger switch 22, so that the circuit 32 connected thereto outputs an injection instructing signal to the main unit 2. According to a controlling action of the control unit 13 a temperature setting for the heater 14 in the steam pot 11 is raised so that evaporation of the purified water begins.

Thereafter, the purified water is guided to the handpiece 4 through the supply hose 3 in a form of steam, and is injected toward the subject's hair through the nozzle cap 36 (more specifically from the nozzle 42a). The operator can move the handpiece 4 to a desired portion of the subject's hair, thus continuing the moisturizing process. In a case where the steam injection becomes temporarily unnecessary, for example when changing a position of the handpiece 4, the operator can release the trigger switch 22. Since the trigger switch 22 is urged to turn the contact off, releasing the trigger switch 22 suspends the output of the injection instructing signal. Accordingly temperature inside the steam pot 11 drops to a predetermined

temperature and the steam generation is suspended. However, when the trigger switch 22 is pulled again, the steam generation is started as described above and the steam injection is restarted toward the subject's hair. Meanwhile, a predetermined temperature that suspends the steam generation is to be set at a level that can maintain a sufficiently high temperature of the purified water in the steam pot 11 so that steam can be promptly generated once the trigger switch 22 is pulled again.

During the foregoing operation, the operator can also press the press-button type selecting switch 38 instead of pulling the trigger switch 22. In this case, pressing the selecting switch 38 causes the circuit 32 to similarly output an injection instructing signal to the control unit 13, and continues to output the same signal until the selecting switch 38 is pressed again. Accordingly, since the steam injection is continued once the selecting switch 38 is pressed, the operator does not have to keep pulling the trigger switch 22 when he/she wishes to continue the steam injection for a long period of time, which is a significant advantage.

Also, the LED 37 is located at the rear face 23b for confirmation of an operating status of the trigger switch 22 and/or the selecting switch 38, such that the LED 37 lights

up while a steam generation instruction is effective (while the trigger switch 22 is pulled or when the selecting switch 38 is pressed down), and extinguishes when suspension of the steam generation is instructed (when the trigger switch 22 is released or the selecting switch 37 is pressed back). Therefore, the steam generation status can be visually confirmed upon checking the LED 37.

As described above, according to this embodiment an operator can perform a job holding in hand the handpiece 4 for injecting steam. Also, a start or suspension of the steam injection can be locally selected by the same hand holding the handpiece 4. Accordingly, it becomes possible to sufficiently moisturize a desired portion of a subject's hair for a permanent wave or hair coloring process. Also, since a flowing direction of the steam is changed inside the handpiece 4, the steam supplied from the main unit 2 through the supply hose 3 is not directly injected out of the injecting nozzle 42a. Further, because of providing the slanted faces 45 and 47 on the injection chamber 41 inside the handpiece 4 droplets that have emerged are promptly returned toward the main unit 2, therefore the droplets do not fall on one's hair even when the handpiece 4 is inclined or the injecting nozzle 42a is oriented downward. In addition, providing two types of switches that perform different functions

permits selection of two injection modes, thereby improving work efficiency. Here, "two injection modes" refers, as already described, to a first mode of performing the injection only while the trigger switch 22 is pulled, and a second mode of selecting either injection or suspension of the injection by the selecting switch 38, so that the injection continues or remains suspended. The first mode is effective for appropriate injection to a desired portion, while the second mode is effective for injection over an extensive area.

Furthermore, the handpiece 4 according to this embodiment is provided with the negative ion injecting unit 34 for injecting negative ions as already described. The negative ion injecting unit 34 is a device for injecting negative ions toward one's hair by applying a voltage generated by a high voltage circuit. A start and a stop of the negative ion injection can be controlled, upon selecting the negative ion injection at the operating unit provided in the main unit 2, through manipulation of the foregoing trigger switch 22 and the selecting switch 38. Negative ions can be employed for hair care, and an operator can select either injection of steam or negative ions alone or simultaneous injection of both, to one's hair.